#### SEQUENCE LISTING

#### (1) GENERAL INFORMATION:

- (i) APPLICANT: Baltimore, David Cheng, Genhong Cleary, Aileen Lederman, Seth Ye, Zheng-sheng
- (ii) TITLE OF INVENTION: TRUNCATED CRAF1 INHIBITS CD40 SIGNALING
- (iii) NUMBER OF SEQUENCES: 5
- (iv) CORRESPONDENCE ADDRESS:

  - (A) ADDRESSEE: Cooper & Dunham, LLP
    (B) STREET: 1185 Avenue of the Americas
  - (C) CITY: New York
  - (D) STATE: New York
  - (E) COUNTRY: USA
  - (F) ZIP: \10036
- (v) COMPUTER READABLE FORM:
  - (A) MEDIUM TYPE: Floppy disk
  - (B) COMPUTER: IBM PC compatible

  - (C) OPERATING SYSTEM: PC-DOS/MS-DOS
    (D) SOFTWARE: PatentIn Release #1.0, Version #1.30
- (vi) CURRENT APPLICATION DATA:
  - (A) APPLICATION NUMBER:
  - (B) FILING DATE:
  - (C) CLASSIFICATION:
- (viii) ATTORNEY/AGENT INFORMATION:

  - (A) NAME: White, John P
    (B) REGISTRATION NUMBER: 28,678
    (C) REFERENCE/DOCKET NUMBER: 50659
  - (ix) TELECOMMUNICATION INFORMATION:
    - (A) TELEPHONE: (212) 278-0400
    - (B) TELEFAX: (212) 391-0525
- (2) INFORMATION FOR SEQ ID NO:1:
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH: 566 amino acids
    - (B) TYPE: amino acid
    - (C) STRANDEDNESS: single
    - (D) TOPOLOGY: linear
  - (ii) MOLECULE TYPE: peptide
  - (ix) FEATURE:
    - (A) NAME/KEY: Peptide
    - (B) LOCATION: 1..566

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1: Met Glu Ser Ser Lys Lys Met Asp Ala Ala Gly Thr Leu Gln Pro Asn Pro Pro Leu Lys Leu Gln Pro Asp Arg Gly Ala Gly Ser Val Leu Val 20 Pro Glu Gln Gly Gly Tyr Lys Glu Lys Phe Val Lys Thr Val Glu Asp Lys Tyr Lys Cys Glu Lys Cys Arg Leu Val Leu Cys Asn Pro Lys Gln Thr Glu Cys Gly His Arg Phe Cys Glu Ser Cys Met Ala Ala Leu Leu Ser Ser Ser Pro Lys Cys Thr Ala Cys Gln Glu Ser Ile Ile Lys Asp Lys Val Phe Lys Asp Asn Cys Cys Lys Arg Glu Ile Leu Ala Leu Gln Val Tyr Cys Arg Asn Glu Gly Arg Gly Cys Ala Glu Gln Leu Thr 120 Leu Gly His Leu Leu Val His Leu Lys Asn Glu Cys Gln Phe Glu Glu 130 Leu Pro Cys Leu Arg Ala Asp Cys Lys Glu Lys Val Leu Arg Lys Asp Leu Arg Asp His Val Glu Lys Ala Cys Lys Tyr Arg Glu Ala Thr Cys Ser His Cys Lys Ser Gln Val Pro Met Ile Lys Leu Gln Lys His Glu 185 Asp Thr Asp Cys Pro Cys Val Val Val Ser Cys Pro His Lys Cys Ser 200 Val Gln Thr Leu Leu Arg Ser Glu Leu Ser Ala His Leu Ser Glu Cys 215 Val Asn Ala Pro Ser Thr Cys Ser Phe Lys Arg Tyr Gly Cys Val Phe Gln Gly Thr Asn Gln Gln Ile Lys Ala His Glu Ala Ser Ser Ala Val Leu Leu Lys Glu Trp Ser Asn Ser Leu Glu Lys Lys Gln His Val Asn Val Ser Leu Leu Gln Asn Glu Ser Val Glu Lys Asn Lys Ser Ile Gln 275 Ser Leu His Ash Gln Ile Cys Ser Phe Glu Ile Glu Ile Glu Arg Gln

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Lys Glu Met Leu Arg Asn Asn Glu Ser Lys Ile Leu His Leu Gln Arg 310 Val Ile Asp Set Gln Ala Glu Lys Leu Lys Glu Leu Asp Lys Glu Ile Arg Pro Phe Arg Gln Asn Trp Glu Glu Ala Asp Ser Met Lys Ser Ser 340 345 Val Glu Ser Leu Gln Asn Arg Val Thr Glu Leu Glu Ser Val Asp Lys 360 Ser Ala Gly Gln Ala Ala Arg Asn Thr Gly Leu Leu Glu Ser Gln Leu Ser Arg His Asp Gln Thr Leu Ser Val His Asp Ile Arg Leu Ala Asp Met Asp Leu Arg Phe Gln Val Leu Glu Thr Ala Ser Tyr Asn Gly Val 410 Leu Ile Trp Lys | Ile Arg Asp Tyr Lys Arg Arg Lys Gln Glu Ala Val Met Gly Lys Thr Leu Ser Leu Tyr Ser Gln Pro Phe Tyr Thr Gly Tyr Phe Gly Tyr Lys Met Cys Ala Arg Val Tyr Leu Asn Gly Asp Gly Met Gly Lys Gly Thr His Leu Ser Leu Phe Phe Val Ile Met Arg Gly Glu Tyr Asp Ala Leu Leu Pro Trp Pro Phe Lys Gln Lys Val Thr Leu Met Leu Met Asp Gln Gly Ser Ser Arg Arg His Leu Gly Asp Ala Phe Lys Pro Asp Pro Asn Ser Ser Phe Lys Lys Pro Thr Gly Glu Met Asn 520 Ile Ala Ser Gly Cys Pro Val Phe Val Ala Gln Thr Val Leu Glu Asn Gly Thr Tyr Ile Lys Asp Asp Thr Ile Phe Ile Lys Val Ile Val Asp Thr Ser Asp Leu Pro Asp 565

- (2) INFORMATION FOR SEQ ID NO:2:
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH: \$68 amino acids
    - (B) TYPE: amino acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(ix) FEATURE:

(A) NAME/KEY: Peptide

(B) LOCATION: 1..568

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:2:

Met Glu Ser Ser Lys Lys Met Asp Ser Pro Gly Ala Leu Gln Thr Asn 1 10 15

Pro Pro Leu Lys Leu His Thr Asp Arg Ser Ala Gly Thr Pro Val Phe 20 25 30

Val Pro Glu Gln Gly Gly Tyr Lys Glu Lys Phe Val Lys Thr Val Glu
35 40 45

Asp Lys Tyr Lys Cys Glu Lys Cys His Leu Val Leu Cys Ser Pro Lys 50 55 60

Gln Thr Glu Cys Gly His Arg Phe Cys Glu Ser Cys Met Ala Ala Leu 65 70 75 80

Leu Ser Ser Ser Pro Lys Cys Thr Ala Cys Gln Glu Ser Ile Val 85 90 95

Lys Asp Lys Val Phe Lys Asp Asn Cys Cys Lys Arg Glu Ile Leu Ala 100 105 110

Leu Gln Ile Tyr Cys Arg Asn Glu Ser Arg Gly Cys Ala Glu Gln Leu 115 120 125

Thr Leu Gly His Leu Leu Val His Leu Lys Asn Asp Cys His Phe Glu 130 135

Glu Leu Pro Cys Val Arg Pro Asp Cys Lys Glu Lys Val Leu Arg Lys 145 150 155 160

Asp Leu Arg Asp His Val Glu Lys Ala Cys Lys Tyr Arg Glu Ala Thr 165 170 175

Cys Ser His Cys Lys Ser Gln Val Pro Met Ile Ala Leu Gln Lys His 180 ! 185 190

Glu Asp Thr Asp Cys Pro Cys Val Val Val Ser Cys Pro His Lys Cys
195 200 205

Ser Val Gln Thr Leu Leu Arg Ser Glu Leu Ser Ala His Leu Ser Glu 210 220

Cys Val Asn Ala Pro Ser Thr Cys Ser Phe Lys Arg Tyr Gly Cys Val 235 240

Phe Gln Gly Thr Ash Gln Gln Ile Lys Ala His Glu Ala Ser Ser Ala Val Gln His Val Asn Leu Leu Lys Glu Trp Ser Asn Ser Leu Glu Lys Lys Val Ser Leu Leu Gln Asn Glu Ser Val Glu Lys Asn Lys Ser Ile Gln Ser Leu His Asm Gln Ile Cys Ser Phe Glu Ile Glu Ile Glu Arg 295 Gln Lys Glu Met Led Arg Asn Asn Glu Ser Lys Ile Leu His Leu Gln 310 Arg Val Ile Asp Ser Gln Ala Glu Lys Leu Lys Glu Leu Asp Lys Glu 330 Ile Arg Pro Phe Arg Gln Asn Trp Glu Glu Ala Asp Ser Met Lys Ser Ser Val Glu Ser Leu Gln Asn Arg Val Thr Glu Leu Glu Ser Val Asp Lys Ser Ala Gly Gln Val Ala Arg Asn Thr Gly Leu Leu Glu Ser Gln Leu Ser Arg His Asp |Gln Met Leu Ser Val His Asp Ile Arg Leu Ala 385 390 Asp Met Asp Leu Arg Phe Gln Val Leu Glu Thr Ala Ser Tyr Asn Gly 410 Val Leu Ile Trp Lys |Ile Arg Asp Tyr Lys Arg Arg Lys Gln Glu Ala 420 Val Met Gly Lys Thr Leu Ser Leu Tyr Ser Gln Pro Phe Tyr Thr Gly Tyr Phe Gly Tyr Lys Met Cys Ala Arg Val Tyr Leu Asn Gly Asp Gly Met Gly Lys Gly Thr His Leu Ser Leu Phe Phe Val Ile Met Arg Gly 470 475 Glu Tyr Asp Ala Leu Leu Pro Trp Pro Phe Lys Gln Lys Val Thr Leu 490 Met Leu Met Asp Gln Gly Ser Ser Arg Arg His Leu Gly Asp Ala Phe 500 Lys Pro Asp Pro Asn Ser Ser Phe Lys Lys Pro Thr Gly Glu Met 520 Asn Ile Ala Ser Gly Cys Pro Val Phe Val Ala Gln Thr Val Leu Glu 

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## (2) INFORMATION FOR SEQ ID NO:3:

# (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 2359 base pairs

- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

## (ii) MOLECULE TYPE: CDNA

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO:3:

GGCGGCGGAG	GATGCGCGC	GCGCCTGAGC	CGGCCGAACG	GGCGGCCTCG	GGGTACAGGG	60
TCCCCATTAC	TTGAAGGATA	AGGCTGGCAC	GGCTCCGACG	TCTGTGTGGA	AGCTTCTCCC	120
TCCCTTCTGA	GCTTCTCTAG	ACTCCTTACA	GCGCACGGCA	CAGAATTTCA	GTTTCCTAAG	180
ATGGAGTCAA	GCAAAAAGAT	GGATGCTGCT	GGCACACTGC	AGCCTAACCC	ACCCCTAAAG	240
CTGCAGCCTG	ATCGCGGCGC	AGGGTCCGTG	CTCGTGCCGG	AGCAAGGAGG	CTACAAGGAG	300
AAGTTTGTGA	AGACGGTGGA	AGACAAGTAC	AAGTGCGAGA	AGTGCCGCCT	GGTGCTGTGC	360
AACCCGAAGC	AGACGGAGTG	TGGCCACCGG	TTCTGCGAGA	GCTGCATGGC	CGCCCTGCTG	420
AGCTCCTCCA	GTCCAAAATG	CACAGCGTGC	CAAGAAAGCA	TCATCAAAGA	CAAGGTGTTT	480
AAGGATAATT	GCTGCAAGAG	AGAGATTCTG	GCCCTTCAGG	TCTACTGTCG	GAATGAAGGC	540
AGAGGTTGTG	CGGAGCAGCT	GACTCTGGGA	CATCTGCTGG	TGCACCTAAA	AAATGAATGT	600
CAGTTTGAGG	AACTTCCCTG	тстесетесс	GACTGCAAAG	AAAAAGTACT	GAGAAAAGAC	660
TTGCGGGATC	ACGTGGAAAA	GCCTGTAAA	TACCGCGAGG	CCACGTGCAG	TCACTGCAAG	720
AGCCAAGTGC	CCATGATCAA	ACTGCAGAAA	CATGAAGACA	CAGATTGTCC	CTGTGTGGTG	780
GTATCCTGCC	CTCACAAGTG	dagcgttcag	ACTCTTCTAA	GGAGTGAGTT	GAGTGCACAC	840
TTGTCCGAGT	GTGTCAATGC	CCCAGCACC	TGTAGTTTTA	AGCGCTATGG	CTGCGTTTTT	900
CAGGGTACAA	ACCAGCAGAT	CAAGGCCCAT	GAGGCCAGCT	CCGCGGTACA	GCACGTGAAC	960
CTGCTGAAGG	AGTGGAGCAA	CTCCCTGGAG	AAGAAGGTTT	CCCTGCTGCA	GAATGAAAGT	1020
GTTGAGAAAA	ACAAGAGCAT	ссааадсстд	CACAACCAGA	TCTGCAGCTT	TGAGATCGAG	1080
ATTGAGAGGC	AGAAGGAGAT	GCTCCGAAAC	AACGAGTCCA	AGATCCTTCA	CCTGCAGCGG	1140

	<i>P</i> -					
GTAATCGACA	GCCAAGCAGA	GAAACTGAAA	GAACTGGACA	AGGAGATCCG	TCCCTTCCGG	1200
CAGAACTGGG	AGGAAGCGGA	CAGCATGAAG	AGCAGTGTGG	AGTCCCTCCA	GAACCGAGTG	1260
ACTGAGCTGG	AGAGCGTAGA	CAAAAGTGCG	GGGCAGGCGG	CTCGCAACAC	AGGCTTGCTG	1320
GAGTCCCAGC	TGAGCCGGCA	TGACCAGACG	TTGAGTGTTC	ATGACATCCG	CTTGGCCGAC	1380
ATGGACCTGC	GGTTCCAGGT	CCTCGAGACC	GCCAGCTACA	ACGGGGTGCT	GATCTGGAAG	1440
ATCCGTGACT	ACAAGCGCCG	GAAGCAGGAG	GCCGTCATGG	GGAAGACCCT	GTCTCTCTAC	1500
AGCCAGCCTT	TCTACACAGG	TTATTTTGGC	TATAAGATGT	GTGCCAGGGT	CTACCTGAAT	1560
GGGGACGGAA	TGGGGAAAGG	GACACACTTG	TCGCTGTTTT	TTGTCATTAT	GCGTGGAGAA	1620
TATGATGCTC	TGTTGCCATG	GCCGTTCAAG	CAGAAAGTGA	CACTTATGCT	GATGGATCAG	1680
GGGTCCTCTC	GCCGTCATCT	GGGAGATGCG	TTCAAGCCTG	ACCCCAACAG	CAGCAGCTTC	1740
AAGAAACCCA	CCGGAGAGAT	GAATATCGCC	TCTGGCTGCC	CAGTCTTTGT	CGCCCAAACT	1800
GTTCTAGAGA	ACGGGACGTA	TATTAAAGAT	GATACAATCT	TTATTAAGGT	CATAGTGGAT	1860
ACCTCGGATC	TGCCTGACCC	CTGACAAGAA	AGCAGGGCGG	TGGATTCAGC	AGAAGGTAAC	1920
TCCTCTGGGG	GGGTGAGCTA	GTGTCTTCAC	GGAGGTCCTC	GCCCTCAGAA	AGGACCTTGT	1980
GGCGCAGAGG	AAGCAGCCGG	AGGAGGAGAA	GGAGGTCGAG	TGGCTGGCAG	GAGAGCCACA	2040
TGTGAAAACA	GACCCCAACG	GATTTTCTAA	TAAACTAGCC	ACACCCACTC	TGAAGGATTA	2100
TTTATCCATC	AACAAGATAA	ATACTGCTGT	CAGAGAAGGT	TTTCATTTTC	ATTTTAAAAG	2160
ATCTAGTATT	AAGGTGGGAA	CATATATGCT	AAAAAGAAAC	ATGATTTTTC	TTCCTTAACT	2220
TAAACACCAA	AAAGAGAACA	CATGTGGGGG	TAGCTGGAGT	GTGTACAGTA	CCTCGAGGGC	2280
TTAAAATCAT	AAACAATCAC	ATACTCATCC	TAAAATTCAG	GGTGCAACTC	CGTTTCAAAT	2340
ATTGTATATT	GTCTATTTA					2359

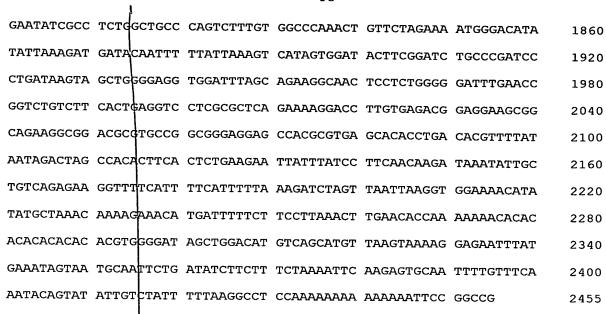
#### (2) INFORMATION FOR SEQ ID NO:4:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 2455 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE; cDNA
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:4:

  CGGGGGAGCG CGGCGCGGCC GCCGCGTGCG CGAGCCGGGG TTGCAGCCCA GCCGGGACTT

60

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TCCAGCCGGC GGCAGCGGCG GCGGTCGTCG GCTCTTCCCC GCCCCCGTC ATGGGGCAGC	120
CCGGGGAGCA GAACGCTGCG GACCGCGCG GAGGACGCGC CCGGCGCCCC TGAGCCGGCC	180
GAGCGGCGAC GGACCGCGAG AACTCCTCTT TCCTAAAATG GAGTCGAGTA AAAAGATGGA	240
CTCTCCTGGC GCGCTGCAGA CTAACCCGCC GCTAAAGCTG CACACTGACC GTAGTGCTGG	300
GACGCCAGTT TTTGTCCCTG AACAAGGAGG TTACAAGGAA AAGTTTGTGA AGACCGTGGA	360
GGACAAGTAC AAGTGTGAGA AGTGCCACCT GGTGCTGTGC AGCCCGAAGC AGACCGAGTG	420
TGGGCACCGC TTCTGCGAGA GCTGCATGGC GGCCCTGCTG AGCTCTTCAA GTCCAAAATG	480
TACAGCGTGT CAAGAGAGA TCGTTAAAGA TAAGGTGTTT AAGGATAATT GCTGCAAGAG	540
AGAAATTCTG GCTCTTCAGA TCTATTGTCG GAATGAAAGC AGAGGTTGTG CAGAGCAGTT	600
AACGCTGGGA CATCTGCTGG TGCATTTAAA AAATGATTGC CATTTTGAAG AACTTCCATG	660
TGTGCGTCCT GACTGCAAAG AAAAGGTCTT GAGGAAAGAC CTGCGAGACC ACGTGGAGAA	720
GGCGTGTAAA TACCGGGAAG CCACATGCAG CCACTGCAAG AGTCAGGTTC CGATGATCGC	780
GCTGCAGAAA CACGAAGACA CCGACTGTCC CTGCGTGGTG GTGTCCTGCC CTCACAAGTG	840
CAGCGTCCAG ACTCTCCTGA GGAGCGAGTT GAGTGCACAC TTGTCAGAGT GTGTCAATGC	900
CCCCAGCACC TGTAGTTTTA AGCGCTATGG CTGCGTTTTT CAGGGGACAA ACCAGCAGAT	960
CAAGGCCCAC GAGGCCAGCT CCGCCGTGCA GCACGTCAAC CTGCTGAAGG AGTGGAGCAA	1020
CTCGCTCGAA AAGAAGGTTT CCTTGTTGCA GAATGAAAGT GTAGAAAAAA ACAAGAGCAT	1080
ACAAAGTTTG CACAATCAGA TATGTAGCTT TGAAATTGAA ATTGAGAGAC AAAAGGAAAT	1140
GCTTCGAAAT AATGAATCCA AAATCCTTCA TTTACAGCGA GTGATCGACA GCCAAGCAGA	1200
GAAACTGAAG GAGCTTGACA AGGAGATCCG GCCCTTCCGG CAGAACTGGG AGGAAGCAGA	1260
CAGCATGAAG AGCAGCGTGG AGTCCCTCCA GAACCGCGTG ACCGAGCTGG AGAGCGTGGA	1320
CAAGAGTGCG GGGCAAGTGG CTCGGAACAC AGGCCTGCTG GAGTCCCAGC TGAGCCGGCA	1380
TGACCAGATG CTGAGTGTGC ACGACATCCG CCTAGCCGAC ATGGACCTGC GCTTCCAGGT	1440
CCTGGAGACC GCCAGCTACA ATGGAGTGCT CATCTGGAAG ATTCGCGACT ACAAGCGGCG	1500
GAAGCAGGAG GCCGTCATGG GGAAGACCCT GTCCCTTTAC AGCCAGCCTT TCTACACTGG	1560
TTACTTTGGT TATAAGATGT GTGCCAGGGT CTACCTGAAC GGGGACGGGA TGGGGAAGGG	1620
GACGCACTTG TCGCTGTTTT TTGTCATCAT GCGTGGAGAA TATGATGCCC TGCTTCCTTG	1680
GCCGTTTAAG CAGAAAGTGA CACTCATGCT GATGGATCAG GGGTCCTCTC GACGTCATTT	1740
GGGAGATGCA TTCAAGCCCG ACCCCAACAG CAGCAGCTTC AAGAAGCCCA CTGGAGAGAT	1800



### (2) INFORMATION FOR SEQ ID NO:5:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 6 amino acids
  - (B) TYPE: amino acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: other nucleic acid
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:5:

Lys Ala Cys Lys Tyr Arg